CLAIMS

We claim:

1. A media level measurement apparatus, comprising:

a sensor configured to provide a temperature signal corresponding to an ambient temperature;

a controller configured to provide a first signal and a second signal;

a source configured to provide an electrical current in response to the first signal;

a thermistor device electrically coupled to the source and configured to provide a level signal corresponding to a level of a media in contact with a lengthwise portion of the thermistor device during the electrical current; and

a signal processor configured to provide a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal.

2. The apparatus of claim 1, and wherein the signal processor includes an analog-to-digital converter.

3. The apparatus of claim 1, and wherein the media is an imaging media.

4. The apparatus of claim 1, and wherein the source is further configured to provide a predefined pulse of electrical current in response to the first signal.

5. The apparatus of claim 1, and wherein the thermistor device includes a thermal window defining the lengthwise portion of the thermistor device and configured to contact the media.

6. The apparatus of claim 1, and wherein the sensor and the thermistor device are defined by substantially equivalent temperature coefficients.

7. The apparatus of claim 1, and wherein the thermistor device is further configured such that the level signal includes a varying resolution corresponding to the level of the media in contact with the thermistor device.

8. The apparatus of claim 1, and wherein the thermistor device is configured to be supported such that the lengthwise portion extends along a majority of a depth-wise dimension of a media reservoir.

9. The apparatus of claim 1, and wherein the controller is further configured to:

provide the first signal;

wait for predetermined period of time; and

provide the second signal after the predetermined period of time.

10. A level measurement apparatus, comprising:

a microcontroller including an executable program code and a plurality of lookup tables, each of the lookup tables including level data, the program code configured to cause the microcontroller to:

provide a trigger signal;

sense a level signal at a predetermined time after providing the trigger signal;

sense an ambient temperature signal;

cross-reference a particular one of the plurality of lookup tables corresponding to the ambient temperature signal;

cross-reference particular level data within the particular lookup table corresponding to the level signal; and

provide an imaging media level signal in accordance with the particular data.

11. The level measurement apparatus of claim 10, and further comprising an electrical source electrically coupled to the microcontroller and configured to provide a pulse of electrical current in response to the trigger signal.

12. The level measurement apparatus of claim 10, and further comprising a thermistor device electrically coupled to the microcontroller and configured to provide the level signal in correspondence to a level of an imaging media in contact with a lengthwise portion of the thermistor device during a pulse of electrical current applied to the thermistor device.

13. The level measurement apparatus of claim 12, and wherein the thermistor device is further configured to be supported such that the lengthwise portion extends along a majority of a depth-wise dimension of an imaging media reservoir.

14. The level measurement apparatus of claim 12, and wherein the thermistor is further configured such that the level signal includes a varying resolution corresponding to the level of the imaging media in contact with the thermistor device.

15. The level measurement apparatus of claim 10, and further comprising an ambient temperature sensor electrically coupled to the microcontroller and configured to provide the ambient temperature signal.

16. The level measurement apparatus of claim 10, and wherein each of the plurality of lookup tables includes a plurality of data records, each data record including:

a predetermined range of values of the level signal; and

the level data representing an imaging media level corresponding to the predetermined range of values.

17. A media level measurement apparatus, comprising:

a controller configured to provide a first signal and a second signal;

a first current source and a second current source each configured to provide a pulse of electrical current in response to the first signal;

a thermistor device electrically coupled to the first current source and configured to provide a level signal corresponding to a level of an imaging media in contact with a lengthwise portion of the thermistor device during the associated pulse of electrical current;

a sensor electrically coupled to the second current source and configured to provide a temperature signal corresponding to an ambient temperature during the associated pulse of electrical current; and

a signal processor configured to provide a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal.

18. The apparatus of claim 17, and wherein the sensor and the thermistor device are defined by substantially equivalent temperature coefficients.

19. The apparatus of claim 17, and wherein the first current source and the second current source and the thermistor device and the sensor are mutually electrically coupled to define a bridge circuit.

20. The apparatus of claim 17, and wherein the thermistor device is further configured such that the level signal includes a varying resolution corresponding to the level of the imaging media in contact with the thermistor device.

21. The apparatus of claim 17, and wherein the thermistor device is further configured to be supported such that the lengthwise portion extends along a majority of a depth-wise dimension of an imaging media reservoir.

22. The apparatus of claim 17, and wherein the controller is further configured to:

provide the first signal;

wait for predetermined period of time; and

provide the second signal after the predetermined period of time.

23. An imaging apparatus configured to form images on a sheet media, comprising:

a reservoir configured to support an imaging media, the reservoir defining a depth-wise dimension;

a thermistor device configured to provide a level signal corresponding to a quantity of an imaging media within a majority of the depth-wise dimension of the reservoir; and

a controller coupled in signal communication with the thermistor device and configured to control at least one operation of the imaging apparatus in accordance with the level signal.

24. The imaging apparatus of claim 23, and wherein the controller is further configured to provide a level message corresponding to the level signal to a user computer.

25. The imaging apparatus of claim 23, and wherein the thermistor device is further configured to provide the level signal in correspondence to a level of the imaging media in contact with a lengthwise portion of the thermistor device.

26. The imaging apparatus of claim 25, and wherein the thermistor device includes a thermal window defining the lengthwise portion of the thermistor device and configured to contact the imaging media.

27. An apparatus, comprising:

a reservoir configured to support an imaging media, the reservoir defining a depth-wise dimension; and

a thermistor device configured to provide a level signal corresponding to a quantity of the imaging media within a majority of the depth-wise dimension of the reservoir.

28. The apparatus of claim 27, and wherein the apparatus is configured to electrically couple the level signal to a controller of an imaging apparatus.

29. The apparatus of claim 27, and wherein the apparatus defines an imaging media cartridge for use with an imaging apparatus.

30. The apparatus of claim 27, and wherein:

the thermistor device includes a thermal window defining a lengthwise portion of the thermistor device; and

the thermal window is configured to contact the imaging media within the majority of the depth-wise dimension of the reservoir.

31. The apparatus of claim 27, and wherein the thermistor device is further configured such that the level signal defines a varying resolution corresponding to the quantity of the imaging media within the majority of the depth-wise dimension of the reservoir.

32. A thermistor device, comprising:

a substrate; and

a thermistor material supported by the substrate, wherein the thermistor device is configured to provide an electrical resistance corresponding to a level of a media in contact with a lengthwise portion of the thermistor device.

33. The thermistor device of claim 32, and wherein the thermistor material substantially defines a strip including a lengthwise varying cross-sectional area.

34. The thermistor device of claim 32, and wherein the thermistor material defines first and second substantially perpendicular lengthwise portions.

35. A thermistor device, comprising:

a plurality of discrete thermistors electrically coupled as a series circuit, wherein the thermistor device is configured to provide an electrical resistance corresponding to a level of a media in contact with a lengthwise portion of the thermistor device.

36. The thermistor device of claim 35, and wherein each of the discrete thermistors are defined by a respective temperature coefficient, and at least one of the temperature coefficients is substantially different than the other temperature coefficients.

37. A thermistor device, comprising:

a mandrel; and

a thermistor wire defining a helix supported about a lengthwise portion of the mandrel, wherein the thermistor device is configured to provide an electrical resistance corresponding to a level of a media in contact with a lengthwise portion of the thermistor device.

38. The thermistor device of claim 37, and wherein the thermistor wire defines a helix defined by a varying pitch.

39. A thermistor device, comprising:

a substrate;

a thermally conductive material supported by the substrate; and

a thermistor thermally coupled to the thermally conductive material, wherein the thermistor device is configured to provide an electrical resistance corresponding to a level of a media in contact with a lengthwise portion of the thermistor device.

40. The thermistor device of claim 39, and wherein the thermally conductive material substantially defines a strip including a lengthwise varying cross-sectional area.

41. A thermistor device, comprising:

a thermal conductor defining a first end and a second end;

a heater thermally coupled to the thermal conductor proximate the first end and configured to provide heat in response to an applied electrical current; and

a thermistor coupled to the thermal conductor proximate the second end and configured to provide and electrical resistance corresponding to a level of a media in contact with a lengthwise portion of the thermistor device.

42. The thermistor device of claim 41, and wherein the heater is defined by another thermistor.

43. A method of measuring a media level, comprising:

providing a thermistor device;

supporting a lengthwise portion of the thermistor device in contact with the media;

applying an electrical pulse to the thermistor device;

waiting for a predetermined period of time;

sensing a level signal from the thermistor device after the predetermined period of time;

sensing an ambient temperature;

comparing the ambient temperature to the level signal; and

providing a media level signal in response thereto.

44. The method of claim 43, and wherein sensing the level signal from the thermistor device after the predetermined period of time occurs during a predetermined portion of the applied electrical pulse.

45. The method of claim 43, and wherein supporting the lengthwise portion of the thermistor device includes supporting the lengthwise portion of the thermistor device such that the lengthwise portion extends along a majority of a depth-wise dimension of a media reservoir.

46. The method of claim 43, and wherein the media is an imaging media.

47. The method of claim 43, and wherein sensing the level signal from the thermistor device after the predetermined period of time occurs after the applied electrical pulse.

48. A media level measurement apparatus, comprising:

means for sensing an ambient temperature;

means providing a first signal and a second signal;

means for providing an electrical current in response to the first signal;

means for providing a level signal corresponding to a level of a media in response to the electrical current; and

means for providing a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal.

49. A media level measurement apparatus, comprising:

thermistor means for providing a level signal corresponding to a level of an imaging media in contact with a lengthwise portion of the thermistor means.